REMARKS

Favorable reconsideration and allowance of the subject application are respectfully requested in view of the following remarks.

Summary of the Office Action

Claim 1 stands objected to under 37 C.F.R. § 1.75 as being a substantial duplicate of claim 6.

Claims 1 and 7 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Yamakawa et al.* further considered with *Ichimura et al.* and both further considered with EP 0814465.

Claims 1 and 7 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Holtslag et al.* further considered with either the article by *Narahara et al. or Ichimura et al.* and all further considered with EP 0814465.

Claim 6 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over *Koyama et al.* considered with EP 0814465 further considered with the article by *Narahara et al.*

Summary of the Response to the Office Action

Applicants amend claim 1 by this amendment. Claim 6 has been cancelled without prejudice or disclaimer. New claim 8 has been added. Accordingly, claims 1, 7, and 8 are currently pending for consideration.

The Objection to the Claims

Claim 1 stands objected to under 37 C.F.R. § 1.75 as being a substantial duplicate of claim 6. To facilitate allowance of the present application, Applicants have cancelled claim 6

without prejudice or disclaimer, thereby rendering the objection moot. Accordingly, Applicants respectfully request that the objection to the claims be withdrawn.

The Rejection of Claim 6 Under 35 U.S.C. §103(a)

Claim 6 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over *Koyama et al.* considered with EP 0814465 further considered with either the article by *Narahara et al.* To facilitate allowance of the present application, Applicants have cancelled claim 6 without prejudice or disclaimer, thereby rendering the rejection of claim 6 moot. Accordingly, Applicants respectfully request that the rejection of claim 6 under 35 U.S.C. § 103(a) be withdrawn.

The Rejections of Claims 1 and 7 Under 35 U.S.C. §103(a)

Claims 1 and 7 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Yamakawa et al.* further considered with *Ichimura et al.* and both further considered with EP 0814465. Claims 1 and 7 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Holtslag et al.* further considered with either the article by *Narahara et al. or Ichimura et al.* and all further considered with EP 0814465. Applicants respectfully traverse the rejections for at least the following reasons.

Yamakawa et al. discloses an apparatus for recording information on or reproducing information from different types e.g., CD and DVD of recording mediums. *Yamakawa et al.* also discloses various recommended values of normalized detector size (NDS) for CD and DVD as shown in column 18 line 35 through column 19 line 35 as listed below.

	Normalized Detector Size (NDS)
CD	15 μm or less preferably 14 μm or less more preferably 10 μm or less a lower limit of about 3 μm, preferably 4 μm
DVD	greater than 7 μm, and preferably 8 μm or greater 1.8 μm to about 16 μm from about 4 μm to about 14 μm preferably 10 μm or greater
CD	from about 3 μm to about 15 μm more preferably from 4 μm to 14 μm
DVD	7 μm or greater, and preferably 8 μm or greater

While the detector's sizes of 16, 10, 4 or 2 or 6, or 8 μm, as shown at column 18, lines 4-21, would yield values appropriately 256, 100, 16, 4, 36, 64 $(\mu m)^2$, *Yamakawa et al.* merely teaches that the normalized photodetector size for a CD should preferably be in the range from about 3 to 15 μm i.e., 9 to 225 $(\mu m)^2$ as well as, for a DVD, from about 1.8 to 16 μm i.e., 3.24 to 225 $(\mu m)^2$, on the basis of jitter and focusing error signal. However, as further seen from *Yamakawa et al's.* teachings, the normalized photodetector size is provided in the range from that of a CD having a NA=0.45 to that of a DVD having a NA=0.6 in the *Yamakawa et al's.* device. In contrast, the device of the present claims has a NA of 0.85 or more and has the feature that the normalized photodetector size is in the range from 50 μm^2 or lower which is narrower than any range that is shown or suggest in *Yamakawa et al's.* teachings. This narrower range of

the normalized photodetector size cannot be obtained with a simple calculation and is inconsistent with the range tendency of *Yamakawa et al's.* normalized photodetector size. The narrower range of the normalized photodetector size of the device of the present claims is decided on the basis of the focus-servo capture range and interlayer crosstalk in the pickup device with the optics having a NA of 0.85 or more.

Although a portion of the *Yamakawa et al's.* normalized photodetector size overlaps the claimed values, the normalized photodetector size overlaps the claimed values, the normalized detector size should not be compared in different conditions between a pickup device having an objective lens with a numerical aperture of 0.85 or greater and a compatible pickup device with a CD-DVD of a low numerical aperture of 0.45 or 0.6.

Yamakawa et al. therefore fails to teach that the photodetector has a normalized detector size of 50 μm^2 or lower for the pickup device having an objective lens of a numerical aperture of 0.85 or greater. It should be noted that the upper value of 50 μm^2 is significant for noise reduction in a pickup device with an object lens with a high numerical aperture e.g., NA = 0.85 or greater in order to stably write and read data to and from multi-layer recording layers. Thus, the upper value of 50 μm^2 is provided by the claims of the present application.

Ichimura et al. discloses an optical head unit comprising a combination lens of an objective lens and a forward lens having a total numerical aperture of 0.8 or above. See, for ex., the Abstract. However, the Office Action does not rely on *Ichimura et al.* to teach or suggest the above discussed features and Applicants respectfully submit that there is no description for any normalized detector size of the photodetector.

EP 0814465 discusses the impact of having a multi-layered disc and the crosstalk between layers. EP 0814465 discloses equations relating the cross talk with various parameters as shown in page 4 to page 8. However, the Office Action does not rely on EP 0814465 to teach or suggest the above discussed features and Applicants respectfully submit that there is no description for any normalized detector size of the photodetector in EP 0814465. Namely, there is no motivation to modify the base system of *Yamakawa et al.* and *Ichimura et al.* Therefore, anyone of ordinary skill in the art cannot make the present invention even though expressing the crosstalk between layers in such variety of parameters.

Holtslag et al. does not disclose a normalized photodetector size and a range thereof. *Holtsag et al.* merely discloses a relationship between a photodetector size and a light-spot size. In fact, *Holtslag et al.* discloses that "[f]or detection system 116 in Fig. 7, this means that the length of the diagonal of the square radiation-sensitive surface is preferably in the range between 1.5 and 3 times the diameter of shape 119. A spot diameter of 30 μm results in a diagonal range from 45 to 90 μm with a preferred value of 60 μm" (column 21 lines 59-64) and further discloses that "[t]he length of the diagonal of the radiation-sensitive surface of each of the detection systems preferably ranges between 1 and 3 times the diameter of the radiation spot on the surface from a tracking beam optimally focused on an information layer" (column 22 lines 37-41). Applicants respectfully submit that the relationship between the photodetector size and light-spot size does not express with normalization based on a magnification of the optical system $(f_c/f_{OB})^2$. The normalized detector size should not be compared in different conditions between a pickup device having an objective lens of a numerical aperture of 0.85 or greater and a pickup device

with a numerical aperture NA=0.52 (column 24 line 15). *Holtslag et al.* does not disclose a numerical aperture of 0.85 for an objective lens of a pickup device.

Narahara et al. discloses an optical disc system for digital video recording using a phase change disc with 9.2 GB capacity with the use of a red laser and an objective lens with a numerical aperture of 0.85 in combination with a thin cover layer (Introduction). However, Applicants respectfully note that the Office Action does not rely on *Narahara et al.* to teach or suggest a normalized detector size of the photodetector. Moreover, Applicants respectfully submit that *Narahara et al.* does not provide any description for normalized detector size of the photodetector.

Koyama et al. discloses an optical recording/reproducing apparatus which includes a mask arranged in a far field region sufficiently separated from a focal plane of the detection optical system, for masking marginal rays, in a direction perpendicular to the track, of the returned light beam, so that information reproduced from a track adjacent to the predetermined track upon reproduction of information on the predetermined track is reduced. (See Abstract of *Koyama et al.*) However, Applicants respectfully submit that *Koyama et al.* does not provide any description for normalized detector size of the photodetector.

Consequently, whether the applied art is considered singly or combined, there is no description for a pickup device of an apparatus for recording or reproducing information having a photodetector with a normalized detector size of 50 μm^2 or lower and having an objective lens with a numerical aperture of 0.85 or greater. Accordingly, Applicants respectfully assert that the applied art does not render the claims 1 and 7 unpatentable and that the rejections of claims 1 and 7 should be withdrawn.

Conclusion

In view of the foregoing, withdrawal of the rejections and allowance of the pending claims are earnestly solicited. Should there remain any questions or comments regarding this response or the application in general, the Examiner is urged to contact the undersigned at the number listed below.

If there are any other fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-0310. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such extension is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted,

MORGAN, LEWIS & BOCKIUS LLP

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By: _____
Robert J. Goodell
Registration No. 41,040

Customer No.: 009629
MORGAN, LEWIS & BOCKIUS LLP
1111 Pennsylvania Avenue, N.W.
Washington, D.C. 20004
Telephone: 202.739.3000
Facsimile: 202.739.3001